wavemaker

Oracle Forms and Reports **modernization using WaveMaker**

A guide to modernizing legacy Oracle Forms and Reports applications into responsive web/mobile applications using WaveMaker low-code platform

Table of Contents

Introduction

Oracle Forms is a component of Oracle Fusion Middleware that has been used over two decades to develop and deploy form-based applications. It uses Oracle databases as a data source. However, there are challenges associated with the technology being not only proprietary but also non-conducive for web and mobile applications. This whitepaper looks at the associated challenges and the solutions thereof for modernizing Oracle Forms-based applications using WaveMaker low-code platform.

Why **modernize**

The business case for modernizing Oracle Forms

Oracle Forms has been used by enterprises for nearly two decades as a Rapid Application Development (RAD) tool to capture and present data from Oracle databases. It has been used widely to automate in-house processes, billing data, payroll data and to generate dynamic as well as static reports. This has resulted in extensive investments in the technology propelled by a large customer base. While enterprises want to provide unique customer experiences, they also want to leverage existing systems and retain investments.

Usability challenges

- Customers are restricted to an outdated GUI. Users want easy-to-use, responsive, pleasing, device-agnostic applications that can be used anytime and anywhere
- Oracle Forms-based applications are not browser-friendly and cannot be deployed on multi-channels like mobile devices
- Oracle Forms application cannot be deployed on the cloud leading to restricted on-premise access

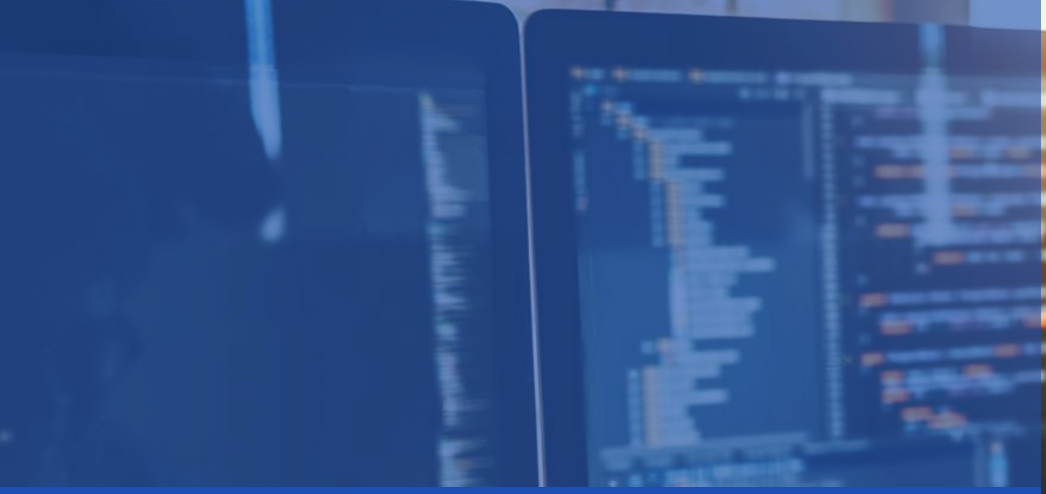
Operational challenges

- Skilled personnel required for developing and maintaining Oracle Forms applications are hard to find. Early-stage developers have moved on to better technology
- Lack of documentation leads to ineffective comprehension of the business logic
- The cost of running and maintaining legacy Oracle Form applications with a dwindling talent pool is high

Performance

- Oracle Forms apps are 2 -3 tier heavyweight applications and have a long load time
- They consume resources both hardware and software
- They experience frequent crashing
- App upgrades within the Oracle environment are complex
- Modern applications need to be stable, secure, and very importantly scalable all of which is limited with Oracle Forms

The cost of building from the ground up versus reusing and leveraging the wealth of data stored in Oracle databases is comparable. Enterprises feel the need to reuse the existing logic and data stored for decades in PL/SQL App servers and Oracle databases respectively. Modernization allows them to reuse without being entirely dependent on the Oracle technology stack.



Why **low-code**

A cost-effective methodology to modernize Oracle Forms is to invest in a technology that is future-proof and can cater to both short and long-term technology objectives of the enterprise. Low-code application development platforms address all challenges mentioned above.

Usability

- Rich UI widgets on the WaveMaker platform that can easily be dragged and dropped to the application canvas enables modern user interactions
- Auto-generated REST APIs allow web-responsive applications to be built for both web and mobile
- One-click deployment to a cloud of your choice enables applications to be rendered as cloud-native applications

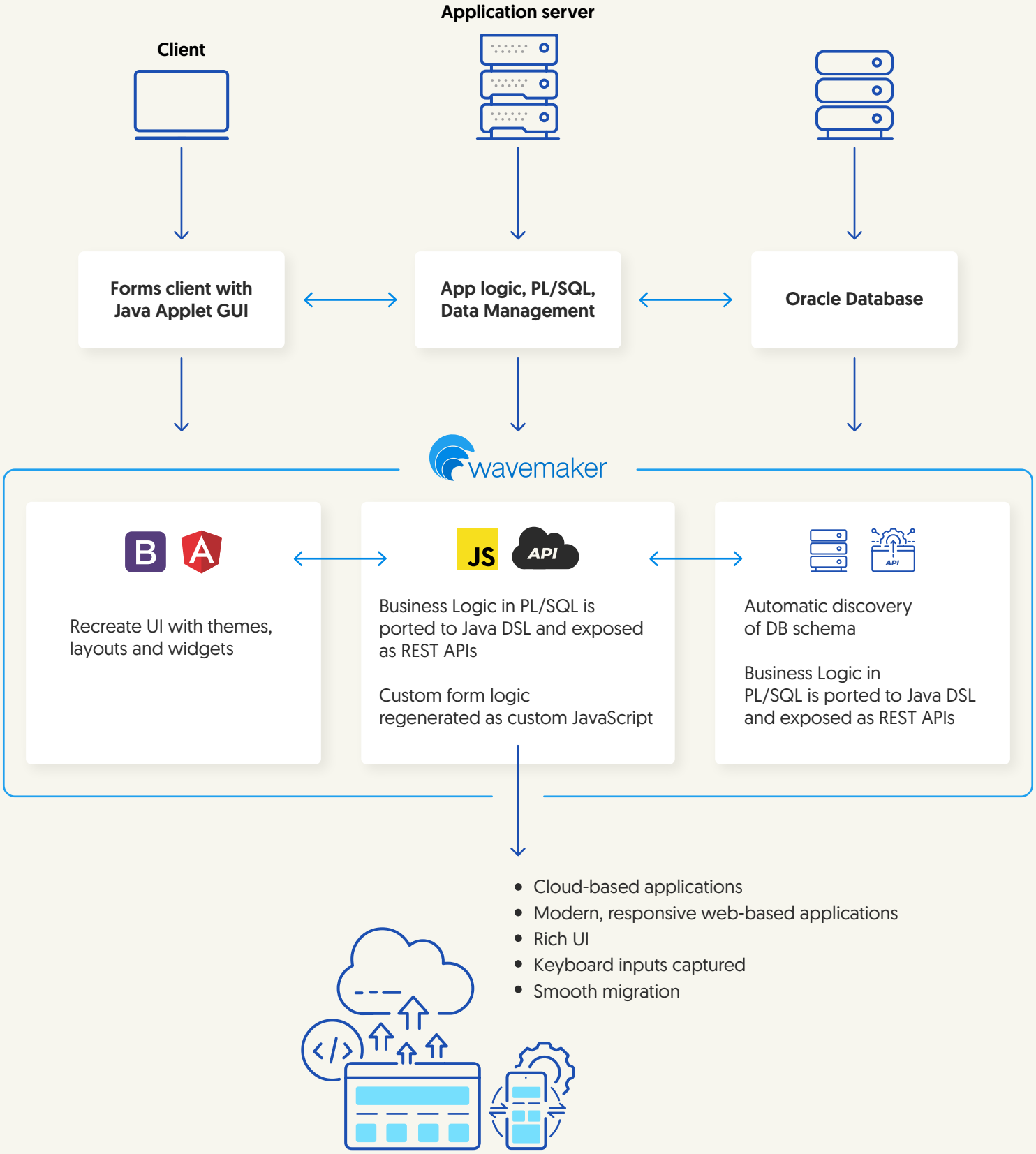
Operability

- Developers with diverse skill sets can use WaveMaker to accelerate development with a very small learning curve
- Existing business logic present in Oracle Forms as PL/SQLs can be ported into WaveMaker and exposed as REST APIs
- New integrations with third-party systems can be achieved with relevant connectors
- Application maintenance cost is negligible in terms of effort and skill

Performance

- Applications created on WaveMaker are lightweight and do not tax on resources
- Any upgrade to technology is taken care of by WaveMaker automatically
- WaveMaker generated code is Veracode™ certified for security
- WaveMaker code supports both horizontal and vertical scaling

How to **modernize using low-code**



- Cloud-based applications
- Modern, responsive web-based applications
- Rich UI
- Keyboard inputs captured
- Smooth migration

Low-code approach to **Oracle Forms modernization**

STEP 01

Identify assets (forms and reports) that need to be modernized.

STEP 02

Import the database connector into the WaveMaker platform

- Oracle database latest versions supported
- WaveMaker automatically discovers and creates the data model.
- All business logic written in PL/SQL at the database level can also be reused by providing it with an API wrapper and invoked using REST APIs.

STEP 03

Convert Oracle Forms PL/SQL logic to Java-based logic using the platform.

- Alternatively, PL/SQL logic on the App Server can be moved to the database which can be invoked using REST APIs.

STEP 04

Use any of the inbuilt widgets to replicate the forms UI with modern and attractive interfaces, bind the widgets or events to procedures and data from the database.

STEP 05

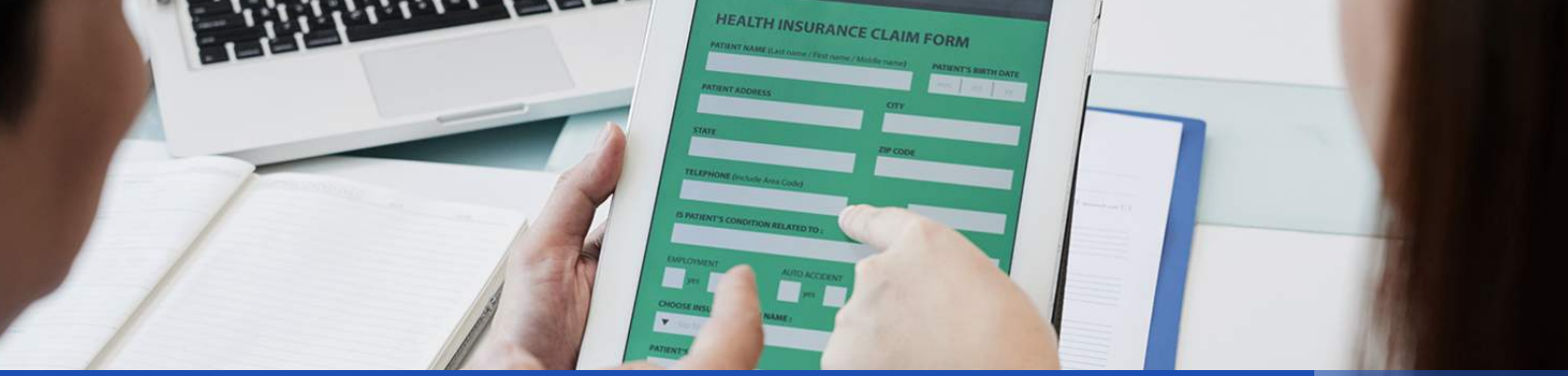
Re-engineer complex custom form logic with simple Javascript.

STEP 06

Additional business logic or process workflow in the forms can be custom coded and leveraged through APIs.

STEP 07

Deploy the application onto the cloud of your choice with a single click.



WaveMaker **accelerators for Oracle Forms apps**

WaveMaker has unique accelerators on the platform that facilitates the refresh, reuse and rebuild of Oracle Forms applications to a modern app.

Database designer

- WaveMaker's database designer allows you to import the Oracle database (latest versions supported)
- Once imported, the platform discovers and creates the data model automatically
- Queries and stored procedures can be executed and the generated logical schema can be viewed on the platform
- The database designer allows developers to perform CRUD operations from within the platform

For detailed information on using database designer visit our learn page

API wrapper & designer

- WaveMaker provides an API designer that auto-generates REST API endpoints
- REST API endpoints are generated for all stored procedures(PL/SQL) of the database
- These endpoints can be further abstracted with UI
- The platform auto-generates APIs for custom Java services and logic

To know more about API designer click here

Conversion of Oracle Forms logic

- Oracle PL/SQL logic is converted to readable, maintainable, and portable Java-based logic on the platform
- Complex custom forms logic residing in the Oracle Forms can be re-engineered by writing custom Javascript
- Other business logic/process workflow in the forms can be integrated by leveraging the APIs

You can find information on binding Javascript logic here

UI/ UX redesigned by templates & themes

- WaveMaker provides out-of-the-box customizable themes and templates that can enhance the look and feel of an older Oracle Forms client GUI
- WaveMaker's 'Theme Builder' ensures that all apps are provided industry-standard styles and themes without having to code, maintaining consistency throughout
- The templates and themes can be customized with styles and match the requirements of a business
- They can be applied across all apps or pages with ease

To understand how you can design your pages better visit this page

Re-build visually

- With the WaveMaker low-code platform, green screens/ forms apps having form fills and other tasks can be easily re-built with the exhaustive list of Angular widgets provided out-of-the-box
- These widgets can be visually dragged and dropped in the app while the integrations to the respective data sources also can be defined visually

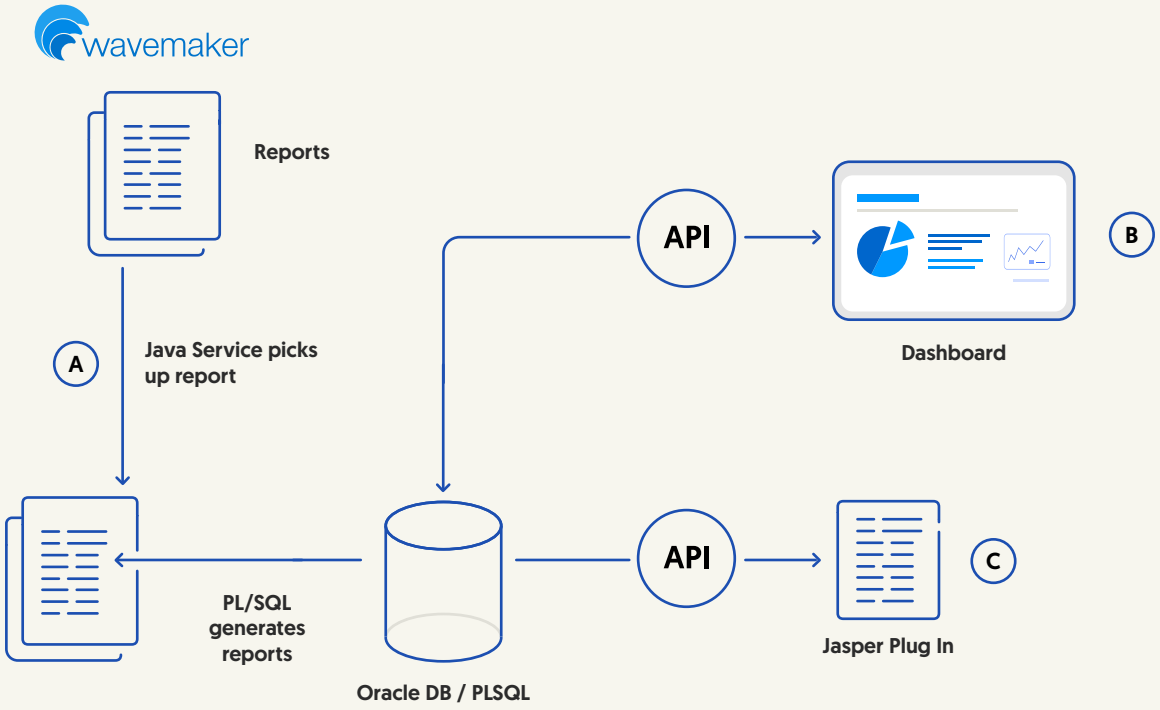
For detailed information on Widgets, click here

Oracle Forms keyboard shortcuts

- WaveMaker allows you to re-create keyboard events that can be mapped to the data source to ensure continued functionality in the form without any loss of efficiency in the app

Oracle Reports **modernization**

Oracle Reports are used to obtain valuable insights for data fed through forms. These could be static or dynamic reports generated by the built-in logic or by PL/SQL procedures. Reports could be presented as web pages or as emailable PDFs. Enterprises switching to low-code can use one of the following approaches to create reports:



A. Static reports in pdf format can be created from the backend by either moving or rewriting the procedures. The procedures generate the report as a document in PDF or any other readable format. The procedures are invoked by any event on the application which can then render the document onto the front end.

B. Create stunning visualizations on dashboards using customized WaveMaker widgets like charts, maps, graphs, and tables. REST APIs can be used to import from the data source and the widgets can be bound to the data source.

C. WaveMaker supports the integration of Jasper reports onto your application. Jasper Reports is an open-source Java reporting tool that can be written to a printer or to a screen. It can be created in a variety of formats such as PDF, HTML, Microsoft Excel, RTF, ODT, CSV, or XML files. Using Jasper reports is as easy as downloading and importing the Jasper connector. Data for the report can either be consumed from a database or an API. The report can be built on the Jasper Studio and rendered onto the front end.

To know more click here

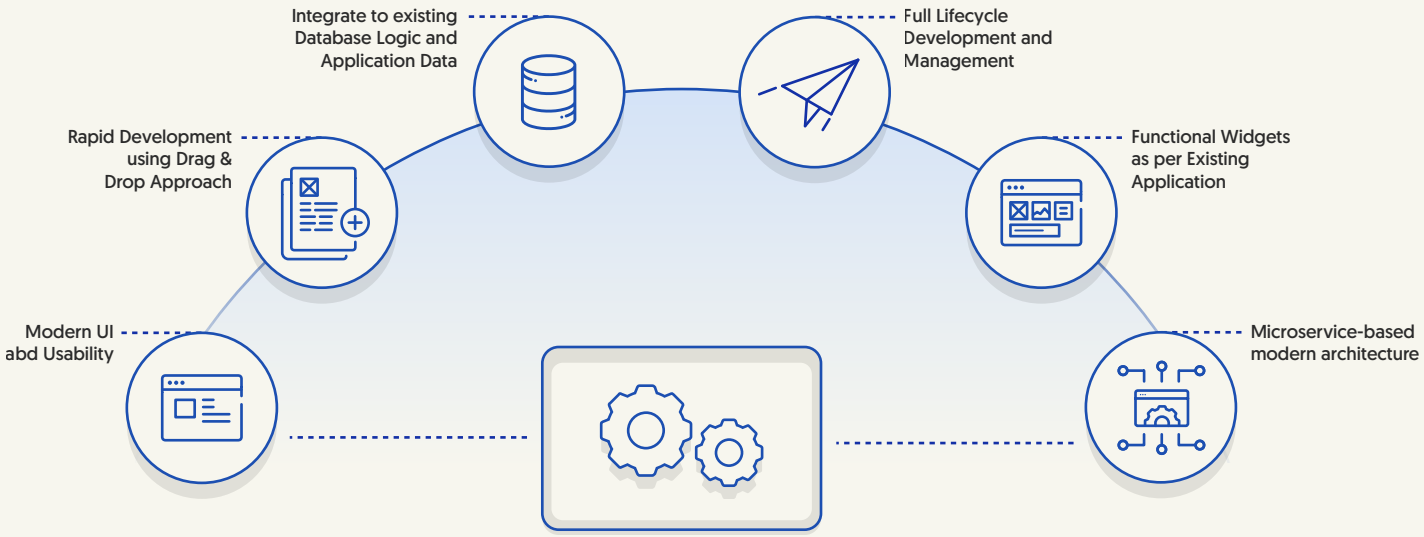
Case study

A large textile manufacturer in South Asia, which specializes in the design and production of garments, and supplies to global clothing brands and high-street fashion retailers were using an Order Management System built using legacy Oracle Forms and Reports for two decades. While it met the functional requirements, it was difficult to use and required specialized skills to maintain. The system could not keep up with modern-day requirements around mobile workforce support, rapid changes as per business needs, and was proving expensive to maintain. As a result, the business was looking to invest in future-proofing technology while leveraging business assets (business logic and app-specific data) that were collected over 20 years.

With WaveMaker, the client migrated the applications to web-based and mobile-based applications that provided modern interfaces leveraging legacy data in the minimum time frame.
This allowed the client to scale and meet business demand with minimum disruption rapidly.

Summary

WaveMaker with its visual development approach abstracts the complex processes and logic in the Oracle database allowing easy re-use of existing data. Aiding the application modernization journey is the fact that the platform can modernize older logic into re-usable modern APIs that can be consumed easily. WaveMaker enables multichannel, device-agnostic, microservices-based applications that are future-proof and scalable. Deployment through a single click on to any cloud of choice, an open standards-based development environment, and a very small learning curve enables developers to modernize rapidly.



About **WaveMaker**

WaveMaker is one of the most open, extensible, and flexible low-code platforms that elevate your enterprise application delivery while keeping in mind the requirements of Software Developers, Citizen Developers/Business Users, IT Architects, and CIOs.

Start your free trial today

Write to us at info@wavemaker.com